HARRISON COLLEGE

FIRST FORM MATHEMATICS   Promotion Examination 2012

Time: 1 hour 30 minutes

INSTRUCTIONS

This question paper consists of THREE printed pages.

Write your name clearly on ALL sheets of paper used.

All of the questions are to be attempted.

Calculators are NOT allowed.

All working MUST be shown.

Number your answers carefully and do NOT do questions beside one another.

The number of marks awarded to each question is indicated in square brackets.

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1. (a) State the number of significant figures in

      (i)   25 000   [1]

      (ii)   10.009   [1]

   (b) Round off 89 234 to 2 significant figures.   [1]

   (c) Round off 45.3874 to 2 decimal places.   [1]

2. Calculate the value of each of the following.

    (i) $17 - 25 =$

    (ii) $-32 - 48 =$

    (iii) $8 - (-69) =$

    (iv) $-\dfrac{1}{2} \times \dfrac{8}{3} =$

    (v) $-91 \div -7 =$

    [10]

3. $U = \{f, o, r, m, u, l, a, e\}$ and A and B are subsets of U such that $A = \{f, o, r, m\}$ and $B = \{m, a, l, e\}$.
    (i)   Draw a Venn diagram to illustrate the above information.   [3]
    (ii)   State, using set notation, the members of the set $A \cap B'$.   [2]

4. Express as a product of primes

    (i)   75   (ii)   105

    Hence, determine the LEAST amount of money which can be equally divided into shares of 75¢

    or 105¢. Give your answers in dollars and cents.   [7]

5. A surveyed was conducted to determine the most popular social networking site among first

    form students. The frequency table below shows some of the results of the survey.

Name of Site	Frequency
Twitter	47
Facebook	
MSN Messenger	08
Tumblr	
TOTAL	120

    (i)   If Tumblr received 10% of the total votes, how many students voted for Tumblr? [2]
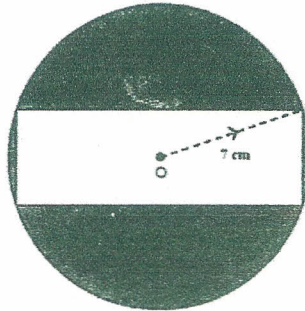   (ii)   How many students voted for Facebook?   [2]
    (iii)   Construct a pie chart, on the answer sheet provided, to illustrate the information from
            the frequency table.   [13]

6. For a maths assignment Shirley has to paint the No Entry sign below. O is the centre of the circle and the dimensions of the inner white rectangle are 12 cm by 4 cm.

   The rectangle is to be painted white and the remainder of the sign is to be painted red.

   Determine the area, in cm², which Shirley will have to paint red. Use $\pi = \frac{22}{7}$.

                                                        [5]

7. During a sale school bags are reduced by 30%.

   (i) How much does Sonia pay for a school bag which originally cost $120? [2]

   (ii) How much did a school bag which was sold for $91 originally cost? [3]

8. Simplify each of the following expressions.

   (i) $2 + x + 5$ [1]

   (ii) $2a + 3b + 6a - b$ [2]

   (iii) $3x \times (-4xy)$ [3]

9. Solve the following equations. Show ALL of the necessary steps.

   (i) $3 + x = 5$ [2]

   (ii) $5 - y = -1$ [3]

   (iii) $5 = 3a$ [2]

   (iv) $1 + 4a = -2 + 7 + a$ [4]

Total 70 marks

END OF EXAMINATION